Abstract

Title

Analysis of the endurance indicators in selected tests in relation to continuous and intermittent loading

Objectives

The aim of this study was to examine the accuracy of the prediction formulas for indirect estimation VO_{2max} from performances in the field tests. The criterion for comparing estimated values were results from laboratory spiroergometry test.

Methods

Ten physically active males (24,5 ± 2,5 years, 179,5 ± 6,2 cm, 75,8 ± 4,9 kg, BMI 23,5 ± 1,3 kg/m^2) performed four different test sessions. Laboratory treadmill test was used for the direct measurement of the maximal oxygen consumption (VO_{2max}) and three field tests for indirect estimation of the VO_{2max} (Cooper test, Yo-Yo Intermittent Recovery Test Level 1 and 2). All the performances from field tests were calculated using prediction formulas.

Results

Directly measured values of VO_{2max} during laboratory testing were in average 58,24 ± 2,77 ml.kg^{-1}.min^{-1}. Indirectly estimated values of VO_{2max} from performances in the Cooper test were in average 61,15 ± 3,73 ml.kg^{-1}.min^{-1}, in Yo-Yo IRT1 52,46 ± 2,51 ml.kg^{-1}.min^{-1} and in Yo-Yo IRT2 53,19 ± 1,56 ml.kg^{-1}.min^{-1}. There was found large positive correlation between laboratory testing and Cooper test (r = 0,76). This correlation was the only one statistically significant. The correlations between laboratory testing and Yo-Yo IRT1 (r = 0,54) and Yo-Yo IRT2 (r = 0,41) were not statistically significant.

Keywords

aerobic endurance, VO_{2max}, maximal oxygen uptake, Yo-Yo Intermittent Recovery Test, Cooper test, prediction